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The attached documents are exact copies of the European patent application described on the following page, as originally filed.

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Patentanmeldung Nr. Patent application No. Demande de brevet n°

03076938.4

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

R C van Dijk

Europäisches Patentamt
European Patent Office
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Anmeldung Nr:
Application no.: 03076938.4
Demande no:

Anmeldetag:
Date of filing: 06.06.03
Date de dépôt:

Anmelder/Applicant(s)/Demandeur(s):

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SUEDE

Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.
If no title is shown please refer to the description.
Si aucun titre n'est indiqué se referer à la description.)

Wind noise reduction in directional microphone

In Anspruch genommene Priorität(en) / Priority(ies) claimed /Priorité(s) revendiquée(s)
Staat/Tag/Aktenzeichen/State/Date/File no./Pays/Date/Numéro de dépôt:

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AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL
PT RO SE SI SK TR LI

Sony Ericsson

Prepared (also subject responsible if other)
SEM/BND/KPE Gerjo Sampimon
Approved
ApprovedBy

Checked
Checked

Confidential
PATENT APPLICATION
No.
DocNo & LangCode
Date
TodaysDate
Rev
Revision
Reference
File

1 Name of invention

Wind noise reduction for miniature directional microphones

2 Inventor(s)

SEM/BND/ER Gerrit Johannes Willem Sampimon
Consultant: David Anderson

3 Background

Microphones for mobile equipment and wind noise.

4 State-of-the-art

Currently all directional microphones are banned from use in handheld equipment and headset because of wind noise. A none directional microphone with or without noise canceling algorithm is used because of less sensitivity for wind noise. (power consuming)

5 Problem

Small portable device such as handheld equipment and headsets for telephony, which use directional microphone to increase their signal to ambient ratio, are highly sensitive to wind noise. To be able to use their advantage this wind noise sensitivity needs to be reduced.

Due to power consumption noise cancel algorithms are not used in small battery powered telephony headsets

6 Solution

The directional microphone is placed in one chamber; this chamber contains large holes and is covered with a fine nylon or metal mesh. In the drawing below a section cut of the solution is given.

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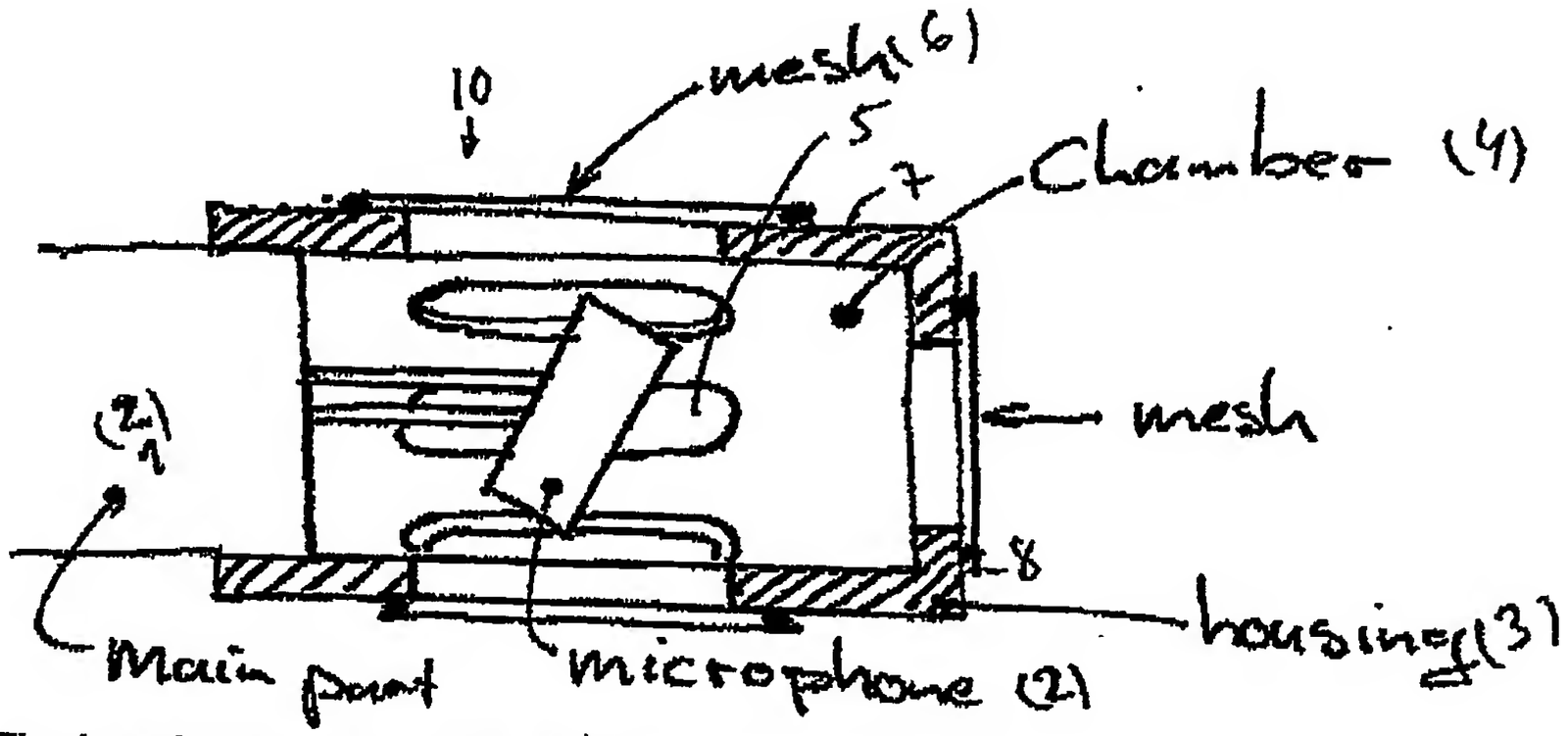
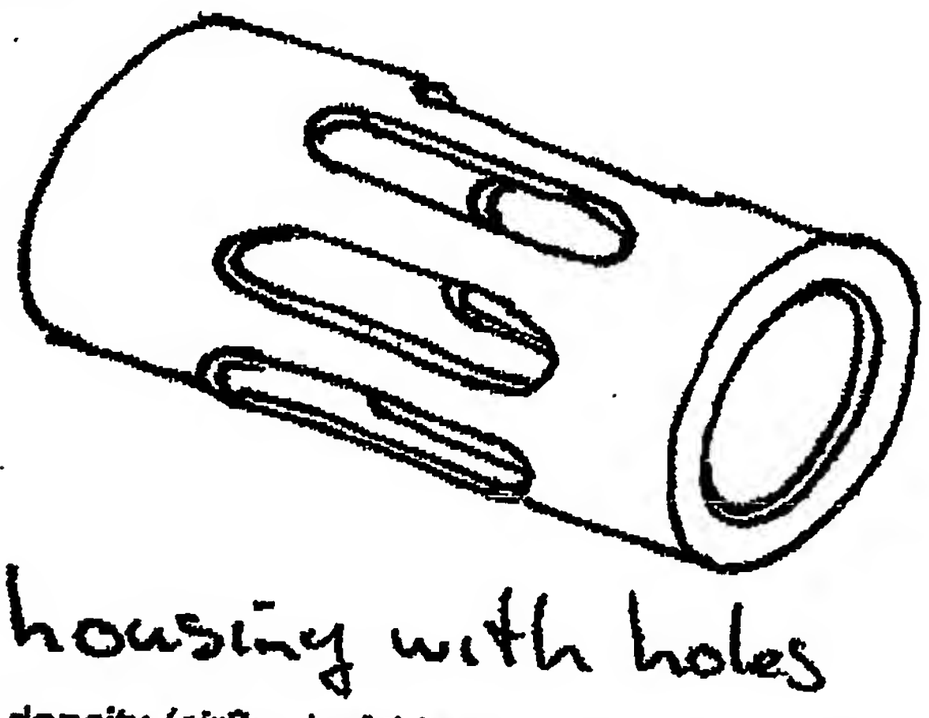
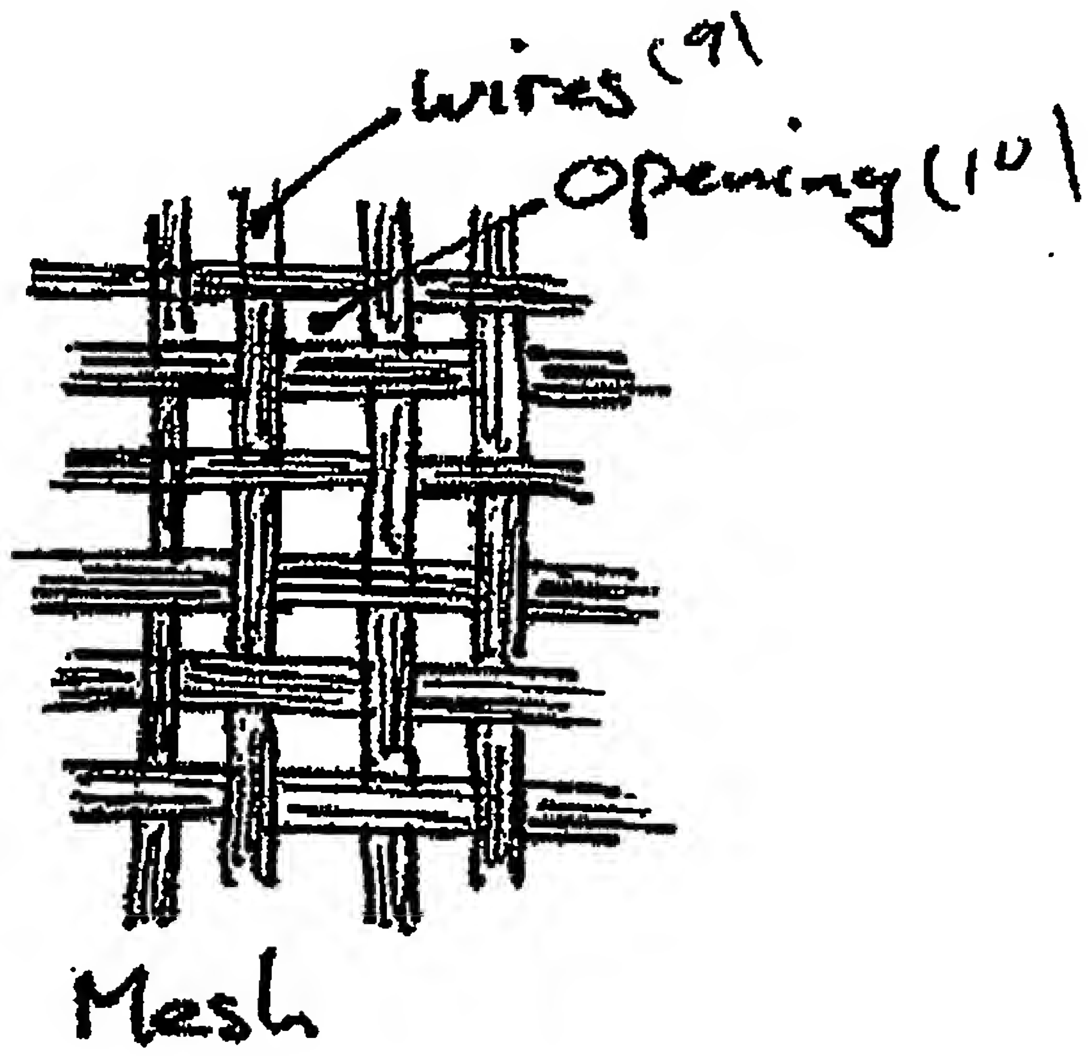


The housing has a number of relative large holes in all directions (see picture below).



The density (airflow) of this mesh and the number of layers together with the size of the chamber determines the amount of wind noise reduction; the ratio between chamber size and density of the mesh allows the microphone to stay directional.



7 **Merits of Invention**

This solution can be made relatively small, 2~3 times the size of the miniature microphone capsule. The reduction can vary from 15~30 dB depending on the amount of directionality that most be maintained. More reduction is less directionality.

8 **Enclosures**

Search in EPS on [microphone and "wind noise"] did not show a similar solution

9 **Claims Proposal**

Small solution for wind noise reduction with directionality of microphone. No electronics or software needed.

Claims

1. Directional microphone (10) for mobile equipment, comprising a microphone pick up (2) located within a microphone pick up housing (3) forming a chamber (4) having a size, said housing (3) being provided with at least one sound passage opening (5) for receiving sound from a sound field external to said chamber (4), characterised in that said at least one sound passage opening (5) is provided with at least one wind noise reduction element (6).

2. Directional microphone (10) according to claim 1, wherein said wind noise reduction element (6) comprises a mesh having one layer.

3. Directional microphone (10) according to claim 1, wherein said wind noise reduction element comprises a mesh having a plurality of layers.

4. Directional microphone (10) according to any one of the claims 2-3, wherein the ratio between the chamber size and the density of the mesh is arranged to provide a directional microphone.

5. Directional microphone (10) according to any one of the previous claims, wherein the mesh is made of metal.

6. Directional microphone (10) according to any one of the previous claims, wherein the mesh is made of polymer material such as nylon.

7. Directional microphone (10) according to any one of the previous claims, wherein said housing (3) extending in a longitudinally direction is a cylinder having a mantle surface (7) and a side surface (8).

8. Directional microphone (10) according to claim 7, wherein said sound passage opening is a hole extending in the longitudinally direction in said mantle surface (7).

9. Directional microphone (10) according to claim 7 or 8, wherein said sound passage opening is a hole in said side surface (8).

10. Directional microphone (10) according to any of the previous claims, wherein said mesh comprises wires (9) with openings (10).

11. Directional microphone (10) according to claim 1, wherein said wind noise reduction element (6) is made of textile fabric.

12. Directional microphone (10) according to claim 1, wherein said wind noise reduction (6) element is made of foamed plastic material.

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